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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 8

Application Number: 09/991,855

Filing Date: 11/20/01

Appellant(s): GITIS ET AL

David M. Sigmond
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed July 3, 2002.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is incorrect. In view of Appellant's remarks concerning claims 13 and 22 set forth in the Appeal Brief filed July, 3, 2002, the examiner agrees that claims 13 and 22 should have been objected to as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. A correct statement of the status of the claims is as follows:

This appeal involves claims 5-11, 15, 16, 20, 21, 29-40, 48-50, 54-61, 63, 64, 66-70.

Claim 71 is allowed.

Claims 12, 13, 14, 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(4) *Status of Amendments After Final*

No amendment after final has been filed.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

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(6) Issues

The appellant's statement of the issues in the brief is substantially correct. The changes are as follows: as noted above, claims 13 and 22 are now objected to as being allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(7) Grouping of Claims

Appellant's brief includes a statement that the grouped claims outlined on page 6 of the Appeal Brief do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

4939603	INUMOCHI	7-1990
5080948	MORITA et al.	1-1992
5212608	YONEOKA	5-1993
JP 63-136370	NISHIMURA	6-1988
JP 2-101687	WATANABE et al.	4-1990

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 5, 6, 9-11, 15, 16, 20-21, 30-33, 35-38 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 02-101687. JP 02-101687 shows in Figures 1 and 4(b) a slider for supporting a magnetic transducer above a rotating disk wherein the slider has: a body with a

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plurality of air bearing surface rail members 2 extending outward from the body; the rail members 2 have a leading edge merged to a point, and a trailing edge opposite the leading edge wherein the leading edge has a V-shape 5 (wedge shape) (see figure 4(b)) for deflecting debris that is narrower in width than the trailing edge, extends to the body, is spaced from outer side surfaces of the body, and is not part of a flat surface (i.e. the leading edge has a taper 1 that makes each rail 2 of a non-uniform thickness); per claim 15, the wide part of the V-shaped portion is spaced from the trailing edge; per claim 16, the distance between the narrow and wide portions of the V-shaped portion is substantially less than the distance between the wide part of the V-shaped portion and the trailing edge; and per claims 32 and 33, depending on the figure, the leading edge is either symmetrically (fig. 4b) or asymmetrically (fig. 1) disposed between the inner and outer surfaces of the rails.

Claim 70 is rejected under 35 U.S.C. 102(b) as being anticipated by JP 63-136370. JP 63-136370 shows a slider with a transducer for transferring information to/from a rotating disk in figures 1 and 2 that has: first and second rails 1 wherein the leading edge 3 of the rails is the narrow portion of a V-shape and the trailing edge (shown generally by ref. numeral 4 in fig. 1) is the wide portion of the V-shape.

Claims 40, 48-50, 54-61, 63, 64, 67, 68 are rejected under 35 U.S.C. 102(b) as being anticipated by Inumochi (US Pat 4939603). Inumochi shows a slider with a transducer for transferring information to/from a rotating disk in figure 1 that has: first and second uniform thickness rails 2 that extend from the slider body to the recording medium so as to form an air bearing surface; the leading edge of the rails 2 is defined by a curved, symmetric surface 8 (U-shaped, parabolic shaped, hyperbolic shaped) so as to make the leading edge of the rails 2

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narrower than the trailing edge of the rails 2 (the trailing edge being generally shown by ref. numerals 4 in figure 1). A rectilinear portion of each rail exists between the wide portion of the U-shape and the trailing edge of the rails. The leading edge of the first and second rails does not extend to the outer side surfaces of the slider body. As per claim 63, the tapered U-shaped width extends across a minority of a distance between the leading and trailing edges.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 02-101687 in view of Inumochi. JP '687 shows a magnetic head slider in figures 1 and 2 and 4(b) that has V-shaped (wedge-shaped) air bearing rails 2 with tapered leading edges 1. However, JP '687 does not show the rails being of a U-shape or parabolic shape. Inumochi shows a magnetic head slider that has parabolic, U-shaped rails. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the V-shaped rails of JP '687 with the U-shaped rail as taught by Inumochi as doing this would have been a matter of design choice to one of ordinary skill in the art. Whether the shaped of the rail was in a V-shape or a U-shape, debris would be effectively deflected away from the air bearing rail surface, therefore preventing dust from being introduced to the bearing plane.

Claims 29 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 02-101687 in view of Yoneoka (US Pat 5212608). JP '687 shows a magnetic head slider in figures 1 and 2 and 4(b) that has V-shaped (wedge-shaped) air bearing rails 2 with tapered leading edges 1. However, JP '687 does not show the rails being of a uniform thickness, i.e. taperless at the leading edge. Yoneoka shows a magnetic head slider in figure 10 that has taperless rails 1,1' that are of uniform thickness from the leading edge to the trailing edge of the slider. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

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remove the taper from the leading edge of the slider of JP '687 as taught by Yoneoka. The rationale is as follows: one of ordinary skill in the art would have been motivated to remove the taper as doing this would lower the fly height of the slider and prevent deposition of particles onto the disk caused by the compression of floating gas at the tapered section as taught by Yoneoka, col. 1, lines 57-65, and col. 2, lines 56-65.

Claim 66 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inumochi (US Pat 4939603) in view of Yoneoka (US Pat 5212608). Inumochi shows a magnetic head slider in figure 1 that has U-shaped (parabolic/hyperbolic-shaped) air bearing rails 2 with tapered leading edges 3. However, Inumochi does not show the rails being of a uniform thickness, i.e. taperless at the leading edge. Yoneoka shows a magnetic head slider in figure 10 that has taperless rails 1,1' that are of uniform thickness from the leading edge to the trailing edge of the slider. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to remove the taper from the leading edge of the slider of Inumochi as taught by Yoneoka. The rationale is as follows: one of ordinary skill in the art would have been motivated to remove the taper as doing this would lower the fly height of the slider and prevent deposition of particles onto the disk caused by the compression of floating gas at the tapered section as taught by Yoneoka, col. 1, lines 57-65, and col. 2, lines 56-65.

Claims 39 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over one of either Inumochi (cl. 69) or JP 02-101687 (cl. 39) in view of Morita et al (US Pat 5080948). Inumochi and JP '687 all shows magnetic head sliders that fly at close distances above a rotating magnetic disk as noted above. However, all are silent as to the exact flying height of the slider (as claimed 1-3 microinches (or approx. 25nm-76nm)). Morita et al discloses a magnetic head

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slider and rotating disk assembly that includes the slider flying at heights between 10-90 nm (see col. 10, lines 1-2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the sliders of Inumochi or JP '687 fly at heights within the claimed range as taught by Morita et al as those flying heights are "effective for floating performance and CSS durability" as taught by Morita et al, col. 10, lines 1-2.

(11) Response to Argument

Appellant asserts on page 7 that JP 02-101687 does not show the claimed "said leading edge has a narrower width as compared to said trailing edge, extends to said body, is spaced from outer side surfaces of said body, and is not part of a flat surface." However, the examiner maintains that JP '687 shows a slider in figures 1 and 4b wherein the pointed V-shaped rail shown in figure 4b is a variation of the pointed rail shown in figure 1. The pointed rail shown in fig. 4b extends to the body, is spaced from outer side surfaces of the body, and is not part of a flat surface (i.e. it has a taper 1). Therefore, the rejection over JP '687 is still deemed proper and has been maintained.

Appellant further asserts on page 8 that JP 63-136370 does not show a slider with a leading edge that is the narrow part of a V-shaped portion. However, the examiner maintains that the rails of JP '370 are V-shaped with the leading edge being the narrow portion of the V-shape. The rails need not come to a crisp point in order to be considered "V-shaped". Claim words are given their broadest reasonable meaning in their ordinary usage, as understood by one of ordinary skill in the art. **In re Morris**, 127 F.3d 1048, 44 USPQ2d 1023 (Fed. Cir. 1997).

Appellant further asserts on page 9 that Inumochi does not show that the leading edge is narrower than the trailing edge as recited in claim 40. However, it is the examiner's position that

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claim 40 defines the rails themselves as having leading and trailing edges, and that the U-shaped ridgeline 8 of Inumochi is the “leading edge” of the rail. There is no need for the leading edge of the rail to coincide with the leading edge of the slider body to meet the claimed limitations of claim 40.

Appellant further asserts on page 9 with regard to claim 61 that Inumochi does not show the leading edges of the rails not extending to the outer side surfaces of the body. As set forth above, it is the examiner’s position that claim 40 defines the rails themselves as having leading and trailing edges, and that the U-shaped ridgeline 8 of Inumochi is the “leading edge” of the rail, therefore, claim 61, which directly depends from claim 40, is properly met by Inumochi in that the leading U-shaped edge of the rail 2 does not extend to the outer side surfaces of the body due to the U-shaped leading edge.

Appellant further asserts on page 10 that it would not have been obvious to replace the V-shaped portion of the rails in JP 02-101687 with the U-shaped portion taught by Inumochi. However, the examiner maintains that one of ordinary skill in the art would have found obvious the change in shape from a V-shape to a U-shape. Both shapes are similar and both shapes would provide for debris deflection at the leading edge of the slider. No unobvious result is seen to exist in replacing a V-shaped leading edge with a U-shaped leading edge.

Appellant further asserts on page 11 that it would not have been obvious to provide flat rails in Inumochi as taught by Yoneoka in rejecting claim 66. However, the examiner maintains that one of ordinary skill in the art would have found obvious the change flatness of the rails in Inumochi (i.e. remove the leading edge taper) as doing this would lower the fly height of the slider and prevent deposition of particles onto the disk caused by the compression of floating gas

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at the tapered section as taught by Yoneoka, col. 1, lines 57-65, and col. 2, lines 56-65. One of ordinary skill in the art would have had a reasonable expectation of success in altering the flatness of the Inumochi rail without destroying the flying height characteristics of the Inumochi slider.

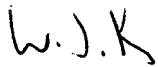
For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



David L. Ometz
Primary Examiner
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DLO
September 30, 2002



Conferee
William Klimowicz

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